

Appel à communication - Session (S2-1) Crossed perspectives - From the field experiments to the laboratory.



Les transitions écologiques
en transactions et actions

Observations and experiments carried out during the field campaigns are essential for understanding the environmental pressures exerted by humans on ecosystems. Taking into account the complexity of the overall processes occurring in the environment (i.e. physicochemical processes at the molecular level or dispersion, global environmental impact processes, etc), requires the development of modeling tools including all types of processes and all scales (time scale and geographic). The models are valuable tools in establishing regulations that aimed, for example, at reducing or tracing the emissions of pollutants into the environment. But, for a good understanding of overall processes, an interdisciplinary multi-criteria and coordinated approach is required which helps to optimize the design and thus, the experimental sobriety. This quest for environmental modeling is sometime judged illusory, and a case-by-case approach is rather develop. However, the understanding the mechanisms makes it possible to be part of a systemic approach and of continuous improvement, it thus has an obvious pedagogical advantage and allows a rise in generality favorable to the regulatory development.

The data acquisition obtained during field campaigns is not enough, to understand all of the fundamental processes. This is particularly the case for the physical, chemical and biological processes that operate during the transfer of contaminants in the various environmental compartments (air, soil and water).

Indeed, the sources of contaminants are numerous, multiform (chemical speciation, size, shapes, etc.) and the quantities emitted vary in time and space. Avoiding, reducing and repairing the impacts of pollution are therefore three complementary levers. In addition, the acquisition of representative and reproducible data encounters technical and methodological difficulties when sampling and / or analyzing environmental samples.

In the environment, contaminants may undergo physical, chemical or biological transformations that will ultimately modify their toxicological and environmental impacts. Laboratory experiments conducted on model systems that are representative of real systems observed in the field make it possible to simplify and better understand the processes and mechanisms involved.

Experiments can be achieved from the atomic to the macroscopic scale. This multi-scale approach makes it possible to determine the parameters necessary for the implementation of the models. The comparison of experimental laboratory data with those obtained from field observations leads to the validation of these environmental and health impact models. The comparison of experimental laboratory data with those obtained from field observations leads to the validation of these environmental and health impact models.

In the context of concrete management of pollution, beyond the understanding of the physicochemical and biogeochemical processes, some important societal issues have to be managed relatively quickly.

In some cases, health issues need to be urgently addressed, for instance, the gold mine site at Salsigne in Aude, France (to avoid exposure of children potentially exposed to dust, contaminated plants). In some other cases, the real estate value of the land is a question for the owners, or food production can be prohibited by prefectural decree (example of the site of MetalEurop (France)). Finally, examples can be cited related to traffic restriction measures implemented during urban air pollution events. In addition, the management of emerging pollutants in constant evolution requires an agility of scientists and public authorities and a strong interactivity with the citizens.

Calendrier :

- **22 Février 2021**
date limite de soumission des résumés.
- **Fin mars 2021**
Réponses aux auteurs (exposés, posters)
- **À partir du 1^{er} avril 2021**
Inscriptions en ligne

In recent years, an increased awareness of the environment-health link by all citizens in society has emerged.

A better knowledge of the environment (with more numerous measurements, more efficient tools and often more sober, cheaper sensors, etc.), a greater accessibility of knowledges and a wish of emancipation and equity, are as many reasons for considering changes for all actors (researchers, managers, citizens, etc.).

Once an ecological emergency has been identified, however, it is difficult to solve complex problems; especially since the difficulties are reinforced by demographic growth and climate change.

The resource of drinking water, food, the development of less resource-intensive cities (materials, energy), or waste management, are crucial subjects that require interdisciplinary socio-technical expertise: knowledge of the biogeochemical and physico chemical mechanisms involved, origins, transfers, exposure scenarios and (eco) toxic impacts of substances.

Moreover, it seems crucial to take into account all elements of context (globalization, emerging pollutants, etc.), the economic, technical, social and environmental criteria and to particularly treat communication to allow a real understanding of the information and an appropriation by citizens who become "consumers-actors".

In this context, the transition from the field to the laboratory is a source of multiple questions: what sampling and for what? what conservation? what is the complementarity between field experiments that are often difficult to interpret and laboratory experiments that can generate artifacts? how to apprehend the change of scale? what place to give to participatory science and how to organize it? etc.

The profane expertise (perceptions, alerts, events) then take a new place alongside academic scientific expertise. The T-2021 conference aims to promote understanding and multi-stakeholder, multi-scale interactions, highlighting the complementarity between the field and laboratory experiments, exchanges between experts and laymen, producers and users ...

A reinforced collective sense (by a renewed confidence between the actors) and a wider diffusion of the tools of the research (scientific method, data sharing, etc.), appears indeed essential to promote the ecological transitions and to face the societal stakes by integrating their sociotechnical complexity.

The expected contributions for sub-session S2-1 concern: (i) multi-criteria and interdisciplinary modeling of the phenomena involved in the fate of pollutants in the environment, their transfers, transformations and impacts on the biosphere; (ii) complex systems management, interdisciplinary scientific expertise, decision support tools and the development of advice and solutions to promote human health and ecosystems; (iii) cross-sociotechnical knowledge of the biogeochemical cycles, life cycles of the various commonly used articles or materials (LCA), practices developed at different steps of the sectors in order to act in an efficient and contextualized way to avoid, reduce or repair the potential environmental and health risks; (iv) the coherence of ecosystem quality management systems (water, soil, air) with sustainable management issues.

The information on the Conference

(presentation, calls for papers, registration, etc.) is available on the website:

<https://transitions2021.sciencesconf.org>

Students in PhD and Master 2 are invited to register on the conference website
(free registration subject to availability)

Guidelines for communication proposals (format and submission):

- proposal with 600 word ; times new roman 12, single line, margins 2,5cm ; title in italic bold (times new roman 14), authors with notes in foot page, statuts and institution address, marled corresponding author (mail and phone), 5 key words and some references.

- Before 22th of February 2021, the proposal has to be submitted in two versions: French and English, bye-mail to sophie.sobanska@u-bordeaux.fr (CNRS), with subject « Proposal for Colloque Transitions 2021 ».

- The proposal will be reviewed by the scientific commity S2-1: M. Cave (UK), C. Dumat (PR Toulouse INP, Certop), E. Schreck (MCF UPS, GET), S. Mombo (MCF Univ. Gabon), C. Feidt (PR Lorraine Univ.), M. Shahid (PR Univ. Pakistan) & J. Sanchez-Hernandez (PR Univ. Spain). In February 2020 you will be informed on the result.



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21-25 juin
2021

